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**(54) INK JET RECORDING HEAD AND INK JET RECORDER EQUIPPED WITH THE RECORDING HEAD**

$$I(r) = \frac{I}{\theta r d(r)}$$

$$q(r) = I(r)^2 \rho d(r)$$

$$q(r) = \frac{I^2 \rho}{\theta^2 r^2 d(r)}$$

(57)Abstract:

PURPOSE: To obtain a recording head having a novel heating element wherein heating distribution on a surface of a resistor is equalized and its recorder by a method wherein a heating resistor has a heating part of an approximately circularly annular or fan-like annular surface shape, and its thickness is varied inversely proportional to a distance in a radial direction from a central point of the surface shape.

CONSTITUTION: When voltage is impressed by making a current (I) flow radially along a radial direction of a heating resistor, a thickness  $d(r)$  of a heating part of the heating resistor is varied inversely proportional to a radial distance ( $r$ ) from a center of a surface shape. Thereby, a current density  $i(r)$  at any point on the heating part at a radial distance ( $r$ ) apart from the center comes to be as given by the formula (I). In the formula  $\theta$  is an angle of a fan-like annulus ( $2\pi$  in the case of a circular annulus). Relation between 'the resistivity ( $\rho$ ) of the resistor and a heating value  $q(r)$  per unit time unit area is as given by the formula II. Therefore, the formula III is obtained.

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